Product Specifications

Electrophoresis Reagents, Polymerase Chain Reaction
Custom Primers and Probes
Hybridization and Detection Reagents

PCR Buffers & Reagents

Store at -20°C

	Catalog Number	Description	Size
❑	40-3060-16	PCR Buffer Standard (10 X Concentrate)	1.6 ml
❑	40-3061-16	PCR Buffer Mg++ Free (10 X Concentrate)	1.6 ml
❑	40-3070-10	Taq Polymerase Storage & Dilution Buffer Standard	1 ml
❑	40-3021-11	dNTP 2 mM (10X)	1.1 ml
❑	40-3022-16	MgCl2; 25mM	1.6 ml
❑	40-3001-16	Nuclease Free Water	1.6 ml

Product Description & Application

PCR buffer conditions vary and it is imperative to optimize buffer conditions for each amplification reaction. At Gene Link most amplification reactions have been optimized to work with the following standard buffer condition, unless otherwise indicated. On occasion Mg++ and other components need to be optimized depending on the template and primer. Mg++ free buffer is offered so as to add specific amount of Mg++.

$MgCl_2$ Concentration

The concentration of Mg^{2+} will vary from 1-5 mM, depending upon primers and substrate. Since Mg^{2+} ions form complexes with dNTPs, primers and DNA templates, the optimal concentration of $MgCl_2$ has to be selected for each experiment. Low Mg^{2+} ion concentration results in a low yield of PCR product, and high concentrations increase the yield of non-specific products and promote mis-incorporation. Lower Mg^{2+} concentrations are desirable when fidelity of DNA synthesis is critical. The recommended range of $MgCl_2$ concentration is 1-4 mM, under the standard reaction conditions specified. At Gene Link, using the standard PCR buffer with KCl, a final dNTP concentration of 0.2 mM, a $MgCl_2$ concentration of 1.5 mM is used in most cases. If the DNA samples contain EDTA or other chelators, the $MgCl_2$ concentration in the reaction mixture should be raised proportionally. Given below is a $MgCl_2$ concentration calculation and addition table using a stock solution of 25 mM $MgCl_2$.

$MgCl_2$ Concentration & Addition Table								
Final concentration of $MgCl_2$ in 50 µl reaction mix, (mM)	1.0	1.25	1.5	1.75	2.0	2.5	3.0	4.0
Volume of 25 mM $MgCl_2$, (µl)	2	2.5	3	3.5	4	5	6	8

Gene Link™

Specifications

❑	40-3060-16	PCR Buffer Standard (10 X Concentrate)

Standard PCR buffer with $MgCl_2$	
10 X PCR buffer	**1 X PCR buffer**
100 mM Tris-HCl pH 8.3	10 mM
500 mM KCl	50 mM
15 mM $MgCl_2$	1.5 mM
0.01% Gelatin; 1 mg/ml	0.1 mg/ml

❑	40-3061-16	PCR Buffer Mg++ Free (10 X Concentrate)

PCR buffer Mg++ Free	
10 X PCR buffer	**1 X PCR buffer**
100 mM Tris-HCl pH 8.3	10 mM
500 mM KCl	50 mM
0.01% Gelatin; 1 mg/ml	0.1 mg/ml

❑	40-3070-10	Taq Polymerase Storage & Dilution Buffer Standard

1 X Taq DNA Polymerase Storage Buffer / Dilution Buffer
10 mM Tris-HCl pH 8.3
100 mM KCl
0.1 mM EDTA
1 mM DTT
0.5% Tween 20
0.5% NP-40
50% Glycerol

Ordering Information

Product	Catalog No.	Unit Size
Taq DNA Polymerase; 400 units; 5 µ/µl; 80 µl	40-5200-40	400 units
Taq PCR Kit; 200 x 50 µl reactions	40-5211-01	200 reactions
Taq PCR Kit with controls; 200 reactions	40-5212-01	200 reactions
PCR Master Mix (2X); 100 x 50 µl reactions (2 tubes x 1.3 ml)	40-5213-01	100 reactions
PCR Master Mix (2X); 200 x 50 µl reactions (4 tubes x 1.3 ml)	40-5213-02	200 reactions

Related Products Ordering Information

PCR Reagents		
Product	**Catalog No.**	**Unit Size**
Taq DNA Polymerase 300 units; 5 µ/µl; 60 µl	40-5200-30	300 units
PCR Buffer Standard (10 X)	40-3060-16	1.6 ml
PCR Buffer Mg Free (10 X)	40-3061-16	1.6 ml
Taq Polymerase Dilution Buffer; 1 ml	40-3070-10	1 ml
dNTP 2mM (10X)	40-3021-11	1.1 ml
$MgCl_2$; 25 mM	40-3022-16	1.6 ml
Omni-Marker™ Universal Unlabeled	40-3005-01	100 µl
Primer and Template Mix; 500 bp; 40 reactions	40-2026-60PT	100 µl
Nuclease Free Water	40-3001-16	1.6 ml
DMSO	40-3031-10	1 ml
TMAC (Tetramethyl ammonium chloride) 100 mM	40-3053-10	1 ml
KCl 300 mM	40-3059-10	1 ml
Betaine; 5M	40-3032-10	1 ml

Omni-Marker™		
Product	**Catalog No.**	**Unit Size***
Omni-Marker™ Universal unlabeled	40-3005-01	100 µl
Omni- Marker™ Universal unlabeled	40-3005-05	500 µl
Omni-Marker™ Universal unlabeled	40-3005-10	1 ml
Omni- Marker™ Low unlabeled	40-3006-01	100 µl
Omni-Marker™ Low unlabeled	40-3006-05	500 µl
Omni- Marker™ Low unlabeled	40-3006-10	1 ml
Omni-Marker™ GScan-2 Tamra labeled 50 bp - 600 bp	40-3062-01	100 µl
Omni-Marker™ GScan-2 Tamra labeled 50 bp - 600 bp	40-3062-05	500 µl

Buffers& Reagents

Product	Catalog No.	Unit Size
Agarose Tablets, 0.5 gm each	40-3011-10	100 tablets
Agarose LE Molecular Biology Grade; 100 gms	40-3010-10	100 g
Agarose LE Molecular Biology Grade; 500 gms	40-3010-50	500 g
Hybwash A, Hybridization Wash Solution	40-5020-20	200 ml
Hybwash B, Hybridization Wash Solution	40-5021-10	100 ml
TAE Buffer; 50X Concentrate; 100 ml	40-3007-01	100 ml
TAE Buffer; 50X Concentrate; 1000 ml	40-3007-10	1000 ml
TBE Buffer; 5X Concentrate	40-3008-10	1000 ml
10x Washing buffer	40-5025-20	200 ml
10% Blocking solution	40-5026-10	100 ml
Seq. Loading buffer	40-5027-00	1 ml
10x AP Detection buffer	40-5031-10	100 ml
Lumisol™ I Hybridization Solution; contains formamide	40-5022-20	200 ml
Lumisol™ II Hybridization Solution; for non-toxic hybridizations	40-5023-20	200 ml
Lumisol™ III Hybridization Solution; for oligo probes	40-5024-20	200 ml

Loading Buffers

Product	Catalog No.	Unit Size
Loading Buffer 5X BPB/XC non-denaturing	40-3002-01	100 µl
Loading Buffer 5X BPB/XC non-denaturing	40-3002-10	1 ml
Loading Buffer 5X Orange G/XC non-denaturing	40-3004-01	100 µl
Loading Buffer 5X Orange G/XC non-denaturing	40-3004-10	1 ml
Loading Buffer 2X BPB/XC Denaturing for Sequencing	40-5027-01	100 µl
Loading Buffer 2X BPB/XC Denaturing for Sequencing	40-5027-10	1 ml

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